



## **FASC Newsletter**

**December 2018**

There are a range of initiative by Societies underway aimed at increasing younger chemists' involvement in the concerns of chemists. Representatives are to be found in Africa who serve on these bodies. Also included in the newsletter is information on the next two young chemists who have been associated with elements in the Periodic Table and come from Africa. Read more below.

The December end of year holidays are upon us. On behalf of the FASC Executive I wish you all a good time with friends (celebrating) and that 2019 will be a successful year for all. The next newsletter will be sent out at the end of January.

*Neil Coville*

### **Content**

- **Information for the newsletter**
- **Advertising in the FASC newsletter**
- **FASC member countries**
- **FASC 2019**
- **African Nobel Prize winner, Aaron Klug, dies**
- **Member Country Society News**

#### **South Africa**

- i) SACI Convention
- ii) Interview with Prof Bert Klumperman
  - **AAS**
  - **IUPAC news**
- i) International Younger Chemists Network (IYCN)
- ii) Periodic Table of Younger Chemists Awards (Edmund Sanganyado, Emmanuel Chukwudalu Ohaekenyem)
- iii) Opening of the International Year of the Periodic Table

- **African Journal of Chemical Education (AJCE)**
- **African Journals of Chemistry**
- **Africa Conference on Research in Chemical Education (ACRICE-4 2019)**
- **PACN news**
- **ACS news**
- **RSC news**

#### **Conferences**

**(Detailed information and adverts follow the listing)**

- AMRS2019 The 10<sup>th</sup> International Conference of the African Materials Research Society (AMRS2019) Arusha, Tanzania
- IUPAC FOR AFRICA, Postgraduate Summer School on Green Chemistry, Dar es Salaam, Tanzania.
- The Second African Light Source Conference (AfLS2) Accra, Ghana, It is concurrent with the Pan African Conference on Crystallography (PCCR2).
- Pan African Conference on Crystallography (PCCR2), Accra, Ghana Joint meeting of PCCR2 with the second African Light Source meeting.
- The 18<sup>th</sup> Asian Chemical Congress and the 20<sup>th</sup> General Assembly of the Federation of Asian Chemical Societies, Taipei, Taiwan
- ACRICE-4 2019, Lagos, Nigeria

### **Information for the newsletter**

Please send all information to either Beth ([admin@faschem.org](mailto:admin@faschem.org)) or to me ([neil.coville@wits.ac.za](mailto:neil.coville@wits.ac.za))

Beth will place all newsletters on the FASC website. She will be responsible for sending out the newsletter every month.

### **Advertising in the FASC newsletter**

The newsletter will provide a means of getting messages to our member countries. This newsletter thus provides a means of advertising employment opportunities, conferences and workshops, and even for companies/Universities to promote themselves. We encourage member countries to use the Newsletter for advertising purposes. All conferences and events will be advertised for free; if not a FASC country, related event there could be a small charge. For advertising costs, contact Beth in the FASC office

### **FASC member countries**

We are currently attempting to upgrade our country membership list. There is a small charge associated with membership. Please contact the treasurer, Prof Yonas Chebude for information ([yonasc@faschem.org](mailto:yonasc@faschem.org) ; [yonasdb1@yahoo.com](mailto:yonasdb1@yahoo.com))

### **FASC 2019**

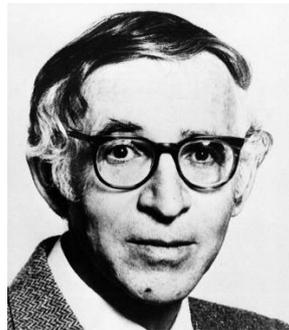
Decisions on the 2019 FASC meeting are still in the process of being finalised. However, if all goes according to plan these are the details so far (from Prof Darkwa)

- A three day SEANAC conference will take place in Gaborone, Botswana from September 25-27, 2019. The last day will be dedicated to FASC activities.
- The conference will be hosted by the University of Botswana in their brand new conference centre that has an auditorium for plenary lectures and rooms for parallel sessions if needed.

Please diarize the dates

## African Nobel Prize winner, Aaron Klug, dies

### **Aaron Klug, Nobel-winning scientist who examined crystal structure, dies at 92**



Aaron Klug, a British scientist who won a Nobel Prize for developing techniques that used electronic probes and crystallographic techniques to discern the architecture and molecular arrangement of some of the molecules essential for life, including the chromosome, died Nov. 20. He was 92.

His death was reported in British newspapers and scientific publications. Details were not immediately available.

Dr. Klug held a PhD in physics but won the Nobel in 1982 for chemistry, for applying techniques from physics and mathematics to problems of molecular structure that could be regarded as within the domain of chemistry.

He was "a towering giant of 20th century molecular biology who made fundamental contributions to the development of methods to decipher and thus understand complex biological structures," Venki Ramakrishnan, president of Britain's Royal Society, said in a statement.

In great degree, Dr. Klug devised and demonstrated techniques of creating pictures of the arrangement of the atoms of crystalline substances in their three-dimensional, previously invisible reality. His work has had profound implications in the study of biology and medicine, including some forms of medical imaging.

Dr. Klug made use of one of the great dualities in science: the existence of electromagnetic radiation and of electrons as both waves and particles, with each regarded as equally real. In the most fundamental sense, scientists probe crystals by bouncing beams of electrons off their atoms. They infer structure by charting the paths of the rebounds.

In addition, subjecting a crystal to electromagnetic radiation from many angles provides further information. Properly analyzed, the patterns made by the reflected radiation can produce a map of a molecule in its full three dimensions.

Dr. Klug's contribution was made possible, at least in part, by his mastery of many scientific techniques, and his ability to transfer methods from physics to the life sciences. Excursions beyond the boundaries of physics into other fields, biology in particular, were not so common, he once noted.

"Many physicists," he observed, "hate the idea of anything wet and sloppy."

Among the major contributions made by Dr. Klug and co-workers was to break down a substance called chromatin into fragments susceptible to diffracted X-rays and the beams of electron microscopy. It is in chromatin that DNA is packaged within living tissue.

Dr. Klug also worked on another molecule of fundamental importance, transfer RNA, and later in his career worked on proteins called zinc fingers, which are involved in switching genes off and on. His research has contributed to the understanding of Alzheimer's disease and other forms of neurodegenerative disease.

In 1982, the Nobel committee awarded the chemistry prize to Dr. Klug "for his development of crystallographic electron microscopy and his structural elucidation of biologically important nucleic acid-protein complexes."

Nucleic acids are fundamental building blocks of living matter; making known their structures has contributed to deeper insights into the mysteries of life.

Mapping the unseen in this manner can be regarded as the solution of a puzzle, and from childhood, Dr. Klug found himself drawn to puzzles.

He was born in Zelvas, Lithuania, on Aug. 11, 1926. He was 2 when his father, an artisan who also became involved in raising cattle, moved the family to Durban, South Africa, hoping to find a home more congenial to Jews.

One of Dr. Klug's earliest fascinations was with Egyptology. Later, the book "Microbe Hunters" by Paul de Kruif, whetted an interest in science. In 1945, he graduated from the University of Witwatersrand in Johannesburg. Drawn by physics, he obtained a master's degree from the University of Cape Town, followed by a PhD in solid state physics at Britain's University of Cambridge in 1952.

In England, he worked at top-ranked institutions with some of the celebrated scientists of his era, including Rosalind Franklin, whose specialty was crystallography. Her work, which led to the discovery of the structure of DNA, has often been said to have been denied full recognition for her contributions until well afterward, possibly because of her gender.

With Franklin, Dr. Klug worked on the structure of tobacco mosaic virus, a springboard to learning more about molecular structure. Through Franklin, he said, he learned something particularly important.

He said he had a tendency to squander energy in service to his wide-ranging curiosity. From Franklin, he learned how important it was at times "to be single-minded."

Through Franklin, Dr. Klug became a friend of Francis Crick, who shared the Nobel Prize with James Watson and Maurice Wilkins in 1962 for discovering the structure of DNA.

Crick helped Dr. Klug's research group become part of a molecular biology lab at Cambridge.

In 1968, Dr. Klug and his collaborators announced the technique of Fourier electron microscopy, showing how seemingly limited data could permit three-dimensional molecular reconstructions. The discovery revealed the structures of hundreds of molecules and produced nothing less than a revolution in the field of structural molecular biology.

In 1986, Dr. Klug became director of the Cambridge molecular biology laboratory, serving until 1996. He was also president from 1995 to 2000 of Britain's venerable Royal Society, the world's oldest scientific organization, whose members have included Isaac Newton, Charles Darwin and Albert Einstein.

In 1948, Dr. Klug married dancer and choreographer Liebe Bobrow; they had two sons and several grandchildren. Complete information about survivors was not available.

"Almost everything I've worked on," Dr. Klug once said, "after I started, other people moved in and did all sorts of useful work, but by then I'd moved on to something else."

The reason, he said, was that "people jump in when they see something good and spoil the fun, really."

*Washington Post obituaries (November 24 at 3:41 PM)*

## Member Country Society News

### 1) South Africa

#### i) SACI Convention

The SACI convention was held at the CSIR Convention Centre in Pretoria from the 9-14 December 2018. The event attracted over 350 delegates in all fields of chemistry. Delegates came from many countries both inside and outside Africa.

At the opening ceremony attended by numerous representatives from SA and abroad the FASC representative (Prof Coville, standing in for the President, Prof M. el Rhazi) congratulated the conference organisers on their achievements to date.

A highlight of the event was the opening plenary lecturer that was delivered by one of the 2016 Nobel Prize winners in Chemistry, Prof Frazer Stoddard. This excellent talk that revealed the importance of Serendipity in research included work on his studies of Au encapsulated by cyclodextrins. A number of Keynote talks that followed were given as requirement for awards that SACI gives to chemists for achievement in chemistry. Another highlight was a talk given on the final day, on the South African Journal of Chemistry. This was given by a former Editor of the Journal, Prof Tony Ford. The Journal turned 100 in 2019 – it is one of the oldest Chemical Journals in the world.

At the event an MOU between SACI and the RSC was signed by the SACI President, Prof Vincent Nyamori and an RSC representative, Prof Tom Welton. This is the third renewal of this MOU and will extend the RSC-SACI relationship for a further 5 years.

The banquet on the Thursday evening provided one of the highlights of the Convention. As has become traditional at many conferences held in SA the evening ended with dancing

*Neil Coville*

#### ii) Interview with Prof Bert Klumperman, Stellenbosch University

(from MaterialsToday: November News Alert 1) <https://www.materialstoday.com/lab-profile-bert-klumperman-stellenbosch>) For further information: <http://www.klumperman-group.net/>



Prof Bert Klumperman  
Science building at Stellenbosch



Group photo taken July 2018 in front of the Polymer Science building at Stellenbosch

The synthesis of carefully designed polymers with complex architectures forms the basis of many processes, from the fabrication of macromolecular structures and molecular brushes to drug-loaded polymeric delivery vehicles for nanomedicine.

Bert Klumperman, who is the current holder of the South African Research Chair on Advanced Macromolecular Architectures at Stellenbosch University in South Africa, leads a research group focusing on the use of reversible deactivation radical polymerization (RDRP) as a versatile tool to create all sorts of polymeric materials.

After receiving an MSc from the University of Twente, Klumperman spent over 10 years in industrial research at DSM Research before completing his PhD at Eindhoven University of Technology (TU/e) in 1994. He stayed on at TU/e as an academic, before relocating to Stellenbosch University. Since then, he has been elected fellow of the Royal Society of South Africa and received several awards, including the 2016 National Science and Technology Forum (NSTF) lifetime award. As well as authoring many publications, he gives frequent lectures at international conferences and is editor of Elsevier's European Polymer Journal. Bert Klumperman talked to *Materials Today* about his current research and future plans.

**How long has your group been running?**

I got involved with Stellenbosch University as a visiting professor in 1998 and, over a period of six years, supervised 2-3 students via remote supervision and two or three annual visits while still working at Eindhoven University of Technology in the Netherlands.

The current group is the result of the South African Research Chair on Advanced Macromolecular Architectures, which was established in 2007.

**How many staff make up your group?**

The group consists of approximately 20 postgraduate students (MSc and PhD level), one post-doctoral fellow, one senior researcher, and one so-called Research Career Advancement (RCA) Fellow. The latter is based on an initiative by the government to increase the possibilities for young academic staff to make a career in academia.

**What are the major themes of research in your group?**

From a chemistry point of view, our main focus is on reversible deactivation radical polymerization (RDRP), with a major emphasis on reversible addition-fragmentation chain transfer (RAFT) mediated polymerization.

Apart from that, we use other polymerization techniques as needed for the construction of specific structures such as, for example N-carboxyanhydride ring-opening polymerization. The research on RAFT-mediated polymerization is, to some extent, aimed at increasing the general knowledge about the technique but very often focused on the synthesis of a specifically designed polymer structure. The two polymers that play a major role in our research at the moment are poly(N-vinylpyrrolidone) (PVP) and poly(styrene-co-maleic anhydride) (SMA). In many of our projects, the ultimate goal is to develop a polymer for an application in the biomedical field such as a hydrogel or drug delivery system.

**How and why did you come to work in these areas?**

The work on SMA dates back to the beginning of my career, when I started in industrial research at DSM Research (in the Netherlands). During that period, I was responsible for the polymer chemistry aspects of a polymerization reaction that was being scaled up to a full-size commercial plant.

When I started my academic career in 1995, I found (and still find) SMA such a versatile and challenging polymer that I kept on doing research on many different aspects of the polymer and its derivatives.

The work on PVP started thanks to a collaboration with BASF (Germany), who wanted to investigate whether PVP could be made via RDRP techniques. We once again discovered many interesting aspects of this polymerization reaction and nowadays use it routinely as an alternative for so-called PEGylation.

The work on biomedical research themes stems from my own personal interest in this field. When I got the freedom to select my own research themes through the Research Chair, my research has gradually transformed in that direction.

**What facilities and equipment does the lab have?**

In the lab, we have all the necessary equipment to conduct polymerization reactions, polymer modification reactions, and so on. We further have a variety of techniques available for the processing of polymers, including a lyophilizer, electro-spinning, and small-scale extrusion systems.

Within our building, we also have a wide spectrum of analytical techniques that are largely dedicated to polymer analysis, e.g. size exclusion chromatography, high performance liquid chromatography, Fourier infrared spectroscopy, UV-Vis spectroscopy, 2D-chromatography (HPLC-SEC), thermal field flow fractionation, asymmetric flow field flow fractionation, to name but a few. Several of these techniques are available thanks to my colleague Harald Pasch.

In addition to dedicated analytical techniques, we also have Central Analytical Facilities at Stellenbosch University that house all major analytical techniques, including nuclear magnetic resonance (NMR) spectroscopy (various spectrometers up to 600 MHz), mass spectrometry, electron microscopy, confocal fluorescence microscopy, flow cytometry, and others.

**Do you have a favorite piece of kit or equipment?**

That would probably have to be the NMR spectrometer. The reason is that we do a lot of what we call *in situ* NMR, which means that we conduct a reaction in the cavity of the NMR spectrometer. This allows us to monitor the appearance and disappearance of compounds and get detailed information on how reactions take place.

**What do you think has been your most influential work to date?**

Our studies on the early stages of RAFT-mediated polymerization have made the largest impact, I believe. We discovered a very selective reaction at the beginning of the polymerization process that converts the original RAFT agent into a single-monomer adduct. Only after that reaction is complete, can the polymerization actually start. We coined the

name ‘initialization’ for this process, which is now broadly adopted by the scientific community.

### **What is the key to running a successful group?**

Good students, good students, and good students! I can do whatever I like, but if there are no students who are skilled and who adopt my enthusiasm for the research that we do, nothing will come of it. In order to train my students to become independent researchers, I like to give them a lot of freedom to bring in their own ideas. This is maybe not always the route towards maximum output in terms of numbers of publications, but I truly believe that my students benefit enormously from my approach.

### **How do you plan to develop your group in the future?**

We have recently started a number of collaborations in the field of styrene maleic acid lipid nanoparticles (SMALP), a technique in which derivatives of our SMA copolymers are used to cut phospholipid bilayers (also cell membranes) into nanodiscs. This turns out to be the almost perfect way of isolating functional membrane proteins. Although the current system already works well, we have plans to include additional functionality in the polymers that will allow a more diverse application of the technology.

## **AAS**

The African Academy of Sciences held their 11<sup>th</sup> Annual General Assembly at the CSIR in Pretoria on 10-11 December. It is noted that both the President (Prof Felix Dakora ) and the CEO (Prof Nelson Torto) are both chemists.

## **IUPAC news**

### **i) International Younger Chemists Network (IYCN)**

“IYCN aims to be inclusive in every possible way, welcoming members from the scientific community on a global scale. One of our specific goals is to communicate the opportunity to join and develop this network to chemists in every country.

The current work of IYCN is to reach out to chemists of all nationalities. A network such as IYCN can only succeed if young chemists from all nations have the opportunity to join, network and participate. We have previously reached out to young chemists from many countries and continue to seek out ambassadors from the underrepresented. While many IYCN members will also be involved in other societies, a platform like IYCN is a constructive route of bridging international borders.

As of today, a truly global network of young chemists has not been established. Also, in most developing countries national chemical societies do not have key programs for the sustainable integration of students and early career professionals. It is our hope that the IYCN can develop into not only a network of young chemists but also a lasting system to foster growth and mentorship in chemistry”

Contact person: Bianca Davids: [bdavids13@gmail.com](mailto:bdavids13@gmail.com) ;

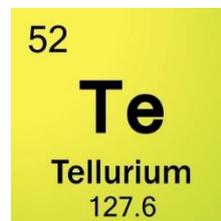
Website: <http://iycnglobal.wixsite.com/iycn>; Email: [IYCN@iupac.org](mailto:IYCN@iupac.org);

Facebook: @IYCN.global; Twitter: @IntlYoungerChem

### **ii) Periodic Table of Younger Chemists Awards**

In this newsletter two more young African chemists have been honoured by having their names associated with elements in the Periodic Table. They are Dr Edmund Sanganyado and Emmanuel Chukwudalu Ohaekenyem

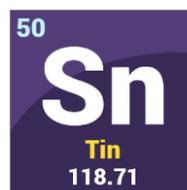
## Edmund Sanganyado



Dr Edmond Sanganyado is a researcher in the Marine Biology Institute at Shantou University (Guangdong, China). He obtained his BSc in Applied Chemistry (2008) from the National University of Science and Technology in Zimbabwe and his PhD in Environmental Toxicology (2016) from the University of California, Riverside in the USA. Edmund received the Fulbright Fellowship in 2011 and the Zhujiang Postdoctoral Fellowship in 2017.

Edmund's research focuses on the application of fundamentals of analytical chemistry and geochemistry in understanding the sources, fate, transport and toxicity of legacy and emerging chemical pollutants in freshwater and marine environments. He has initiated and led several international collaborations with researchers from the global south on environmental sustainability and climate change mitigation and adaptation.

## Emmanuel Chukwudalu Ohaekenyem



Emmanuel Chukwudalu, Ohaekenyem was born on April 14<sup>th</sup>, 1988 in Anambra State, Nigeria. He received his BSc. Degree in Pure and Industrial Chemistry (First Class Honours) from Nnamdi Azikiwe University in 2011. Graduating with First Class Honours, he received a lecturing position to teach Chemistry in a University after his National Youth Service Corps (NYSC) in 2013. His research focuses on synthesis of macrocycles with an eye on new drug development and alternative energy. As a master student, Emmanuel synthesized sets of novel

1,10 – phenanthroline based macrocycles and their complexes; which showed anti-microbial activities against bacteria and fungi and photocatalytic potentials. Being research oriented, he enrolled in a PhD program where he is focused on providing cure to different cancer diseases using new complexes of tetraaza-macrocycles. He has about eight publication and four conference papers.

As a way to get involved with new trends in research and also contribute to the science world, he joined scientific associations such as American Chemical Society (ACS), International Union of Pure and Applied Chemistry (IUPAC), International Younger Chemist Network (IYCN)/Social Media Team and International Research and Development Institute (IRDI). He has communicated his research findings to science audiences in ACS Nigeria chapter, IRDI and Chemical Society of Nigeria (CSN). He has shown a high level of commitment and diligence in his research haven and been mentored and coached by several professors within his field. In 2010, he spent six months in research institute learning research methods and its etiquette. He served as president of Millennium Development Goals (MDGs), Family and Community Reorientation (FACOR) component in 2012, during which he aided in dissemination, sensitization and education of his community towards the then MDGs. He equally was among the Council of Leaders in charge of corps members' affairs in Ekiti State, Nigeria. Emmanuel is a passionate scholar geared towards addressing the health and energy challenges of the world. In other to increase academic drives and opportunities for Chemical Science students, he formed part of the pioneers that established the ACS international student chapter. Emmanuel is happily married.

*(from IUPAC website)*

### **iii) Opening of the International Year of the Periodic Table**

As most of you probably are aware, the formal “flagship” opening of the International Year of the Periodic Table will be celebrated in Paris at the UNESCO headquarters, on January 29, 2019. With this message we alert you that registration is required for all participants, via the website: <https://www.iypt2019.org/opening-ceremony>.

All interested people are welcome to attend this ceremony. There are no costs of attending. Of course IUPAC would love to see many chemists attending, and you are encouraged to spread the news within your organization. We trust you will understand that attendance costs (travel and lodging) will not be reimbursed by IUPAC.

You can also find the preliminary program and further travel information on the above website, such as a list of suggested hotels and an email address for requesting a visa application letter. The meeting room has a maximum capacity of 1,000 and registration will be accepted in order of receipt.

Prof. Qi-Feng Zhou   Prof. Richard Hartshorn President, IUPAC 2018-2019   Secretary General, IUPAC 2018-2019

## **African Journal of Chemical Education (AJCE)**

A PDF version of the first issue of volume 8 AJCE 2018 is available. The online version is available at the FASC

website: [http://www.faschem.org/sites/default/files/u1/AJCE\\_2018\\_January2.pdf](http://www.faschem.org/sites/default/files/u1/AJCE_2018_January2.pdf)

You will find the individual articles in the AJOL website ([www.ajol.net](http://www.ajol.net).)

Papers on any aspect of Chemistry Education such as teaching organic, analytical, physical, inorganic, polymer, green, climate change/environmental chemistry, ICT in chemistry and chemistry curricula as well as assessment in chemistry are acceptable for publication. We also encourage issues on chemistry and indigenous knowledge/practice, chemical safety, natural products and related areas.

### African Journals of Chemistry

- i) **Journal of the Mauritanian Chemical Society (JMCS):** publishes research articles and conference proceedings in English or French. This is published online on our website: <http://www.scm Mauritania.org/journal-scm>; M A Sanhoury, JMCS Coordination Editor
- ii) **South Africa - South African Journal of Chemistry:** This Journal is published electronically. The webpage is: <http://www.saci.co.za/>. Details of the journal and the editors can be seen at <http://www.journals.co.za/sajchem/>. The South African Journal of Chemistry, published by the South African Chemical Institute, has been publishing high quality papers, in all fields of Chemistry for over 50 years. The Journal went fully electronic in 2000 and is freely available through open access online ([http://reference.sabinet.co.za/sa\\_epublication/chem](http://reference.sabinet.co.za/sa_epublication/chem)). It is a CAS-abstracted publication and is listed in Current Web Contents. It has retained its status as an accredited publication with the South African Department of Higher Education and Training.

### ACRICE-4 2019

#### Africa Conference on Research in Chemical Education

Conference Dates: 22<sup>nd</sup> – 27<sup>th</sup> September 2019 (CHEMICAL SOCIETY OF NIGERIA)



### Deadlines for ACRICE-4 2019 submissions

1. Last date for submission of abstract & full papers for oral presentations – Friday, 22<sup>nd</sup> March, 2019
2. Last date for submission of abstract & full papers for poster presentation: Friday, 29<sup>th</sup> March, 2019
3. Communication of status of all submitted articles to the corresponding authors shall be on or before the close of business on Friday, 26<sup>th</sup> April 2019
4. The last date for the submission of all accepted and corrected full length papers for oral presentations with evidence of payments and conference registration would be Friday 17<sup>th</sup> May 2019
5. The last date for the submission of all accepted and corrected full length papers for poster presentations with evidence of payments and conference registration would be Friday 24<sup>th</sup> May 2019
6. Payments to be made for accepted articles for publications in the conference book of proceedings after presentation at the conference is N7,500.00 only.
7. Poster presentation session which will be held from Tuesday 24<sup>th</sup> –Thursday 26<sup>th</sup> September 2019
8. Email address for submission of articles for oral presentation is [acrice4.csn2019oralp@chemsociety.org.ng](mailto:acrice4.csn2019oralp@chemsociety.org.ng)
9. Email address for submission of articles for poster presentation is [acrice4.csn2019posterp@chemsociety.org.ng](mailto:acrice4.csn2019posterp@chemsociety.org.ng)
10. Conference Dates: 22<sup>nd</sup> – 27<sup>th</sup> September 2019.

### PACN news



*Helen Driver*  
RSC

### ACS news

The Younger Chemists Committee (YCC) advocates for and provides resources to early-career chemists and professionals in the chemical sciences and related fields. The YCC addresses specific issues facing younger chemists within the ACS and serves as a voice to the Society on behalf of younger chemist

The Younger Chemists Committee (YCC) of the American Chemical Society (ACS) recognizes that chemistry is a global endeavor that serves chemistry professionals across the globe. Successful programs and collaborations require dedicated volunteers and coordination amongst scientific societies to make a lasting impact on our esteemed profession.

*Dr Sadhna Mathura is a representative from Africa*

## Royal Society of Chemistry Events Website

Our website can be used to advertise events from across the world – not just those organised by the Royal Society of Chemistry, [www.rsc.org/events/africa](http://www.rsc.org/events/africa).

So, if you need a simple website for your event, or want to reach a wider audience, then please submit your event to our website. Simply click on this link and follow the instructions: [www.rsc.org/events/submitevent](http://www.rsc.org/events/submitevent)

## Conferences

- 1) **AMRS2019** The 10<sup>th</sup> International Conference of the African Materials Research Society (AMRS2019) will be held in Arusha, Tanzania from 11-14 December 2019. Contact: [amrstanzania@gmail.com](mailto:amrstanzania@gmail.com)
- 2) **IUPAC FOR AFRICA, Postgraduate Summer School on Green Chemistry**, 12th - 19th May 2019, Dar es Salaam, Tanzania. [http://www.tcs-tz.org/iupac\\_summer\\_school\\_2019.htm](http://www.tcs-tz.org/iupac_summer_school_2019.htm)
- 3) **The Second African Light Source Conference (AfLS2)** is being held in Accra Ghana from the 28th January – 2nd February 2019. It is concurrent with the Pan African Conference on Crystallography (PCCR2). [http://events.saip.org.za/event/AfLS2\\_PCCR2](http://events.saip.org.za/event/AfLS2_PCCR2)  
**Email:** [tshepo.ntsoane@necsa.co.za](mailto:tshepo.ntsoane@necsa.co.za)
- 4) **The 18<sup>th</sup> Asian Chemical Congress and the 20<sup>th</sup> General Assembly of the Federation of Asian Chemical Societies**, Taipei, Taiwan December 8-12, 2019, [www.acc2019.tw](http://www.acc2019.tw)
- 5) **Pan African Conference on Crystallography (PCCR2)**, Accra, Ghana from 28th January 2019 to 2nd February 2019. Joint meeting of PCCR2 with the second African Light Source meeting.
- 6) **ACRICE-4 2019 BY CHEMICAL SOCIETY OF NIGERIA**; 22<sup>nd</sup> – 27<sup>th</sup> September 2019. Email address for submission of articles for oral presentation is [acrice4.csn2019oralp@chemsociety.org.ng](mailto:acrice4.csn2019oralp@chemsociety.org.ng); Email address for submission of articles for poster presentation is [acrice4.csn2019posterp@chemsociety.org.ng](mailto:acrice4.csn2019posterp@chemsociety.org.ng)

## Detailed Conference information

### AMRS2019

The 10<sup>th</sup> International Conference of the African Materials Research Society (AMRS2019) will be held in Arusha, Tanzania from 11-14 December 2019. The Tanzania AMRS2019 will draw participants from around the world, with an anticipated attendance of approximately 600. At its heart, the AMRS series of conferences allows the scientific and research communities to build knowledge, foster relationships and promote action for further understanding and

collaborations in the broad fields associated with materials science and technology. The themes of AMRS2019 reflect both the needs of the global research community for Africa development. The themes of AMRS2019 reflect both the needs of the global research community such as energy and health, as well as the needs that are specific to Africa.

AMRS2019 Conference Themes: 1. Materials for **HEALTH** | 2. Materials for **SUSTAINABLE BUILDINGS & CONSTRUCTION MATERIALS** | 3. Materials for **WATER & ENVIRONMENTAL MITIGATION TECHNOLOGIES** | 4. Materials for **NANOSCIENCE/NANOTECHNOLOGY** | 5. Materials for **MINING & MINERAL PROCESSING** | 6. MATERIALS FOR **AGRICULTURE/ENVIRONMENT** | 7. Materials **EDUCATION/NETWORKING IN MATERIALS SCIENCE & ENGINEERING** | 8. MATERIALS FOR **ENERGY** | 9. **COMPUTATIONAL MATERIALS SCIENCE** | 10. **MANUFACTURING & STRUCTURAL MATERIAL**

Contact: [amrstanzania@gmail.com](mailto:amrstanzania@gmail.com)

**IUPAC for Africa**

## IUPAC FOR AFRICA

Postgraduate Summer School on Green Chemistry

Inspired by **IUPAC Centenary** and the **International Year of the Periodic Table** Celebrations  
12<sup>th</sup> - 19<sup>th</sup> May 2019, Dar es Salaam, Tanzania

[http://www.tcs-tz.org/iupac\\_summer\\_school\\_2019.htm](http://www.tcs-tz.org/iupac_summer_school_2019.htm)



**IUPAC** INTERNATIONAL UNION OF  
PURE AND APPLIED CHEMISTRY



Registration open until 30th April 2019: <http://www.tcs-tz.org/iupac2019/>  
Abstract Submission deadline – 14<sup>th</sup> April 2019

### INTRODUCTION

Green chemistry, also known as sustainable chemistry, is the design of chemical products and processes that reduce or eliminate the use or generation of hazardous substances. Green chemistry applies the cycle of a chemical product, including its design, manufacture and use.

The 2019 IUPAC Summer School on Green Chemistry will be held in Tanzania. This is the first time this event is being held in Africa managed by the IUPAC Interdivisional Committee on Green Chemistry for Sustainable Development (ICGCSD). The Summer School will be hosted by the University of Dar es Salaam (UDSM), University of Dodoma (UDOM), the Tanzania Bureau of Standards (TBS) and the Government Chemist Laboratory Authority (GCLA) in collaboration with the Tanzania Chemical Society (TCS)

The 2019 Summer school is special in that it will be held during the **100th Anniversary of IUPAC**. Further to that, 2019 is the **International Year of the Periodic Table** as declared by United Nation, coinciding with the 150th Anniversary of Dmitry Mendeleev's discovery of the periodic system. The event will provide the participants with an understanding of the latest developments of the concepts and management of green/sustainable chemistry.

### DAR ES SALAAM, HAVEN OF PEACE

The summer school will be held at the University of Dar es Salaam.

Dar es Salaam is the commercial center of Tanzania and one of the biggest cities in East Africa, nestled along a natural harbor on the Indian Ocean.





## **Pan African Conference on Crystallography (PCCr2), Accra, Ghana from 28th January 2019 to 2nd February 2019**

The second edition of the Pan African Conference on Crystallography (PCCr2) will be held in Accra, Ghana from 28th January 2019 to 2nd February 2019. The conference is open to researchers, academics, students and individuals in industry from all over the world. The conference themes captures crystallography and its related fields. The purpose of the conference is to create a platform for sharing of knowledge, promoting networks and establishing collaborations to further development of the continent through science and engineering. If you wish to attend PCCr2, please take note of the following important dates.

Early Bird Registration: 1st April 2018 - 15th October 2018

Regular Registration: 1st November 2018 - 15th January 2019

Late Registration: 16th January 2019 - 30th Onsite registration

Abstract submission deadline : **15<sup>th</sup> September, 2018.**

Abstracts should be submitted as an email attachment to : [abstracts@pccrafrica.org](mailto:abstracts@pccrafrica.org)

[@pccr2gh](https://www.instagram.com/pccr2gh)

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Please register now; send your abstract (no abstract , no bursary) and if you need bursaries (mostly for PhD, post Docs and young professors) please apply : we need a personal letter which shows your interest for crystallography, a CV , travelling budget (trip, accommodation) and a recommendation letter from your professor; gender balance will be respected. We also seek to have scientists from all African countries.

The international jury will decide end of September and will give full or partial bursaries.

*Chairman of the IUCr/UNESCO initiative*